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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/500,362	06/28/2004	Thomas Hasskerl	253629US0PCT	7615
22850	7590	08/09/2007		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER ROBINSON, ELIZABETH A	
			ART UNIT 1773	PAPER NUMBER
			NOTIFICATION DATE 08/09/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No.	Applicant(s)	
	10/500,362	HASSKERL ET AL.	
	Examiner	Art Unit	
	Elizabeth Robinson	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 17-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6-28-2004, 9-12-2005, 12-6-2005</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I, claims 1-16 in the reply filed on July 20, 2007 is acknowledged. The traversal is on the ground(s) that the reference used to show that the composition of claim 1 is not a "special technical feature" does not teach, as a whole, the instant composition, but only teaches isolated elements that could be combined. This is not found persuasive because rather than a combination of isolated element, the Examiner was showing one specific way, of many, in which the prior art teaches the composition of claim 1. Another more detailed example is contained below in the rejection of claim 1. The Examiner maintains that the cited reference teaches the composition of claim 1 and thus the restricted claims do not share a "special technical feature".

The Applicant further argues that the burden of proof is on the Examiner to provide reasons and/or examples to support any conclusions that the claims of the restricted group are patentably distinct. In response, the Examiner reprints the fourth paragraph of Page 4 of the June 20, 2007 office action, which states:

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

The requirement is still deemed proper and is therefore made FINAL.

Claims 17-24 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on July 20, 2007.

Claim Objections

Claims 12 and 13 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 12 states that monomer E should be present in an amount of at least 50% by weight, but claim 1 from which it depends states that monomer E should be 55 to 98.99 parts by weight of the composition. Claim 13 depends from claim 12 and is thus also objected to.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto (US 5,385,988).

Regarding claim 1, Yamamoto (Column 17, line 46 through Column 18, line 29, Example 26) teaches an example composition comprising vinyltrimethoxy silane, water, hydroxyethyl methacrylate, and methyl methacrylate. Vinyltrimethoxy silane meets the structural limitations of silicon compound A) of the instant application with R^1 being vinyl (an alkenyl with 2 carbons), X being methoxy (an alkoxy with 1 carbons), $m=1$, $n=1$, $o=0$, $r=0$, and $s=3$. Hydroxyethyl methacrylate meets the structural limitations of compound D) of the instant application with R^3 being a methyl group and R^4 being an aliphatic radical with 2 carbon atoms having a hydroxy group. Methyl methacrylate meets the structural limitations of compound E) of the instant application. In claim 1 of the instant application, the only components which must be present are A, B, D and E. Components C and F can be present at 0 parts by weight of the composition. Example 26 (Columns 17 and 18) teaches that the silicon compound and the water are reacted first and then the methacrylates are added. The relative proportions of vinyltrimethoxy silane, water and hydroxyethyl methacrylate meet the proportions of the instant claim. Yamamoto does not explicitly teach how much methyl methacrylate is added to the composition. However, Yamamoto (Column 7, lines 30 through 39) teaches that the radical-polymerizable vinyl compound (the methacrylates) is present in a range of 1 to 99% by weight of the composition and that the silane compound is present in a range of 99 to 1% of the composition. Yamamoto (Column 1, lines 44-50) further teaches that the relative proportions of the silicon compound and the acrylic resin determine the properties of the composite composition such as rigidity, transparency, toughness and workability. The composition of Example 26 of Yamamoto either meets the proportions

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of the instant claim or alternately it would be obvious to one of ordinary skill in the art to vary the proportion of the methyl methacrylate to obtain a composite material with a desired level of transparenence and workability. With the range of adjustability of the silane to methacrylate compounds, the relative proportions of the compounds are met.

Regarding claim 2, vinyltrimethoxy silane (of Example 26) meets the limitations of the silicon compound of formula (Ia) of the instant claim with R^1 being vinyl (an alkenyl with 2 carbons), X being methoxy (an alkoxy with 1 carbons), $n=1$, and $s=3$.

Regarding claim 3, Yamamoto (Column 5, lines 49-52) teaches that the silicon compound can be a combination of a silane compound of formula (II) and a silane compound of any of formulas (IV) to formula (VII). A combination of a formula (II) compound and a formula (V) compound meets the limitations of the instant claim. For example, ethyltrimethoxysilane is a formula (II) compound that meets formula (Ib) of the instant application with R^2 being an alkyl with 2 carbons, X being methoxy (an alkoxy with 1 carbons), $o=1$ and $s=3$. Vinyltrimethoxysilane is a formula (V) compound that meets formula (Ia) of the instant application with R^1 being an alkenyl with 2 carbons, X being methoxy (an alkoxy with 1 carbons), $n=1$ and $s=3$.

Regarding claim 4, vinyltrimethoxy silane meets the limitations of silicon compound of formula (Ic) of the instant claim with R^1 being vinyl (an alkenyl with 2 carbons), and X being methoxy (an alkoxy with 1 carbons).

Regarding claims 5 and 6, Yamamoto (Column 3, line 46 through Column 4, line 7) teaches that the preferred silane compounds meet one of the formulas (II) through

(VIII). γ -Methacryloxypropyltriethoxysilane is a silane compound of formula (IV) with R^7 being a methyl group, $p=3$, $n=0$, and R^6 being a hydrocarbon radical of 2 carbon atoms.

Regarding claim 7, Yamamoto (Column 6, lines 43-49) teaches that the hydrolysis of the silane compound is carried out at a temperature ranging from room temperature ($\sim 20^\circ\text{C}$) to 120°C . This range overlaps the range of the instant claim. In Example 26 (Columns 17 and 18), the reaction is carried out at 70°C .

Regarding claim 8, Yamamoto (Column 6, lines 39-41) teaches that the reactant is dissolved homogeneously in the hydrolysis reaction.

Regarding claim 9, Yamamoto (Column 6, lines 43-49) teaches that the hydrolysis of the silane compound is carried out for a period of about 30 minutes to about 24 hours. This range is fully encompassed by the range of the instant claim.

Regarding claim 10, as stated above, Yamamoto (Example 26, Columns 17 and 18) teaches hydroxyethyl methacrylate (a hydroxyalkyl (meth)acrylate) as one of the two methacrylates of the composition.

Regarding claim 11, Yamamoto (Column 2, lines 16-50) teaches that there can be more than one methacrylate as the radical polymerizable vinyl compound.

Yamamoto further teaches glycidyl methacrylate as one of the useful monomers.

Regarding claims 12 and 13, as stated above, Yamamoto (Example 26, Columns 17 and 18) teaches methyl methacrylate (ethylenically unsaturated monomers) as one of the two methacrylates of the composition. This meets the limitation of formula (III) of claim 12 with R^3 being a methyl group and R^5 being an aliphatic radical with 1 carbon.

Regarding claim 16, Yamamoto (Example 26, Columns 17 and 18) teaches adding 0.15 parts by weight of AIBN (the same free-radical polymerization initiator as is preferred in the instant case).

Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto, in view of Owens (US 3,793,402).

Regarding claim 14, as stated above Yamamoto teaches a composition that meets the limitations of claim 1, since compound F can be present at 0 parts per weight. The composition contains a large percentage of monomer E, which as taught above, can be methyl methacrylate. Yamamoto (Column 21, lines 55-60) further teaches that the composite compositions are useful as windowpanes. Yamamoto does not teach adding impact modifiers to the composition. Owens (Column 1, lines 27-66) teaches adding impact modifiers to rigid thermoplastic polymer compositions, which are useful as glazing material, in order to improve the impact resistance of the rigid materials. Owens (Column 11, lines 35-51) further teaches that the rigid thermoplastics are copolymers that contain 50 to 100% of an alkyl methacrylate monomer, preferably methyl methacrylate. The impact modifiers comprise polymerized methyl methacrylate (Column 12, lines 44-48) and are thus a copolymer of monomer E. It would be obvious to one of ordinary skill in the art to add the impact modifiers of Owens, to the composition of Yamamoto, to improve the impact resistance of the methyl methacrylate copolymer glazing/windowpane composition.

Regarding claim 15, Owens (Column 2, lines 1-58) teaches that the impact modifiers can be added at about 4 to 90 wt.% of the impact modifier/rigid thermoplastic

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composition. Owens (Column 10, lines 30-73) further teaches that an emulsion of the impact modifier (referred to as the multi-stage polymer) can be added to the rigid thermoplastic monomer mix, in order to yield the desired rigid thermoplastic polymer. The outer layer of the impact modifier is preferably made from methyl methacrylate (Column 8, lines 63-73) and thus the emulsion would contain methyl methacrylate as compound F. The amount and composition of the impact modifier emulsion would be a results effective variable that would determine the impact strength of the rigid thermoplastic polymer. It would be obvious to one of ordinary skill in the art to vary the amount and composition to meet a desired level of impact strength for the rigid thermoplastic composition.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Robinson whose telephone number is 571-272-7129. The examiner can normally be reached on Monday- Friday 8 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ear



CAROL CHANEY
SUPERVISORY PATENT EXAMINER